

Two new species of the genus *Irura* Peckham & Peckham, 1901 (Araneae: Salticidae) from Hainan Island, China

Jian-yu Guo^{1,2}, Feng Zhang^{1*} & Ming-sheng Zhu¹

¹ College of Life Sciences, Hebei University, Baoding Hebei 071002, China;

² Teaching and Research Section of Biochemistry, Tieling Health College, Tieling Liaoning 112000, China

* Corresponding author, E-mail: dudu06042001@163.com

Abstract — Two new species of jumping spiders belonging to the genus *Irura* Peckham & Peckham, 1901 collected from Hainan Island, China, were diagnosed, described and illustrated under the names: *Irura bidenticulata* sp. nov. and *I. pengi* sp. nov.

Key words — Salticidae; new species; Hainan Island; China

Introduction

The family Salticidae, commonly called jumping spiders, is the largest and most diverse spider group in the world and is represented by 573 genera and 5337 known species (Platnick, 2011). Among them, 426 species of 85 genera have been found in China (Li & Wang, 2011; Platnick, 2011).

The salticid genus *Irura* was erected by Peckham & Peckham (1901) based on the type species *Irura pulchra* Peckham & Peckham, 1901. Simon (1903) designated the genus to the group Simaethae. At present it belongs to the subfamily Marpissinae, and includes ten species in the world, mainly distributes in Southeast Asia (*I. bicolor*, *I. mandarina*, *I. pygaea* and *I. prima*), southern China (*I. hamatapophysis*, *I. trigonapophysis*, *I. longiochelicera*, *I. yueluensis* and *I. yunnanensis*) and Sri Lanka (*I. pulchra*). In appearance it is close to *Simaetha*. Members of *Irura* were diagnosed according to following characters: flattened and broadened body habitus; long and thick leg I; oval abdomen, dorsum with big and orange apodemes; palpal organ with a long cymbial flange, long and thin embolus, unobvious conductor; weakly sclerotized epigynum; pear-shaped spermatheca connecting with S-shaped copulatory ducts.

Hainan Island, located in the South China Sea, is the China's southernmost province and the country's second largest island after Taiwan. Only a shallow and narrow strait separates it from Leizhou Peninsula of Guangdong to the north. Hainan has a tropical moist monsoonal climate and forest covers 51.5% of the whole island. It lies entirely in the tropics and has a rich tropical primeval forest home to many rare animals and plants. The spider fauna is very rich and abundant on Hainan. Song *et al.* (2002) recorded 196 species, belonging to 88 genera and 13 families.

While examining specimens collected from Hainan Island in 2007–2009, we found some undescribed jumping

spiders with the flattened and broadened habitus and the long and thick leg I which conform to the generic characters of *Irura*. We describe here two species new to science under the names: *Irura bidenticulata* sp. nov. and *I. pengi* sp. nov.

Materials and methods

All measurements are given in millimeters. Carapace length was measured from the anterior margin to the rear margin of the carapace margin, excluding the clypeus. Total length is the sum of carapace and abdomen length, regardless of the petiolus. Eye sizes were measured as the maximum diameter in dorsal or frontal view. The measurements of legs are as follow: total length (femur + patella + tibia + metatarsus + tarsus). All specimens were preserved in 75% alcohol, examined, illustrated and measured under a Tech XTL-II stereomicroscope equipped with an Abbe drawing device. Specimens of the new species were deposited in the Museum of Hebei University (MHBU), Baoding, China.

The abbreviations used in this paper are as follows: AME, anterior median eyes; ALE, anterior lateral eyes; PME, posterior median eyes; PLE, posterior lateral eyes.

Taxonomy

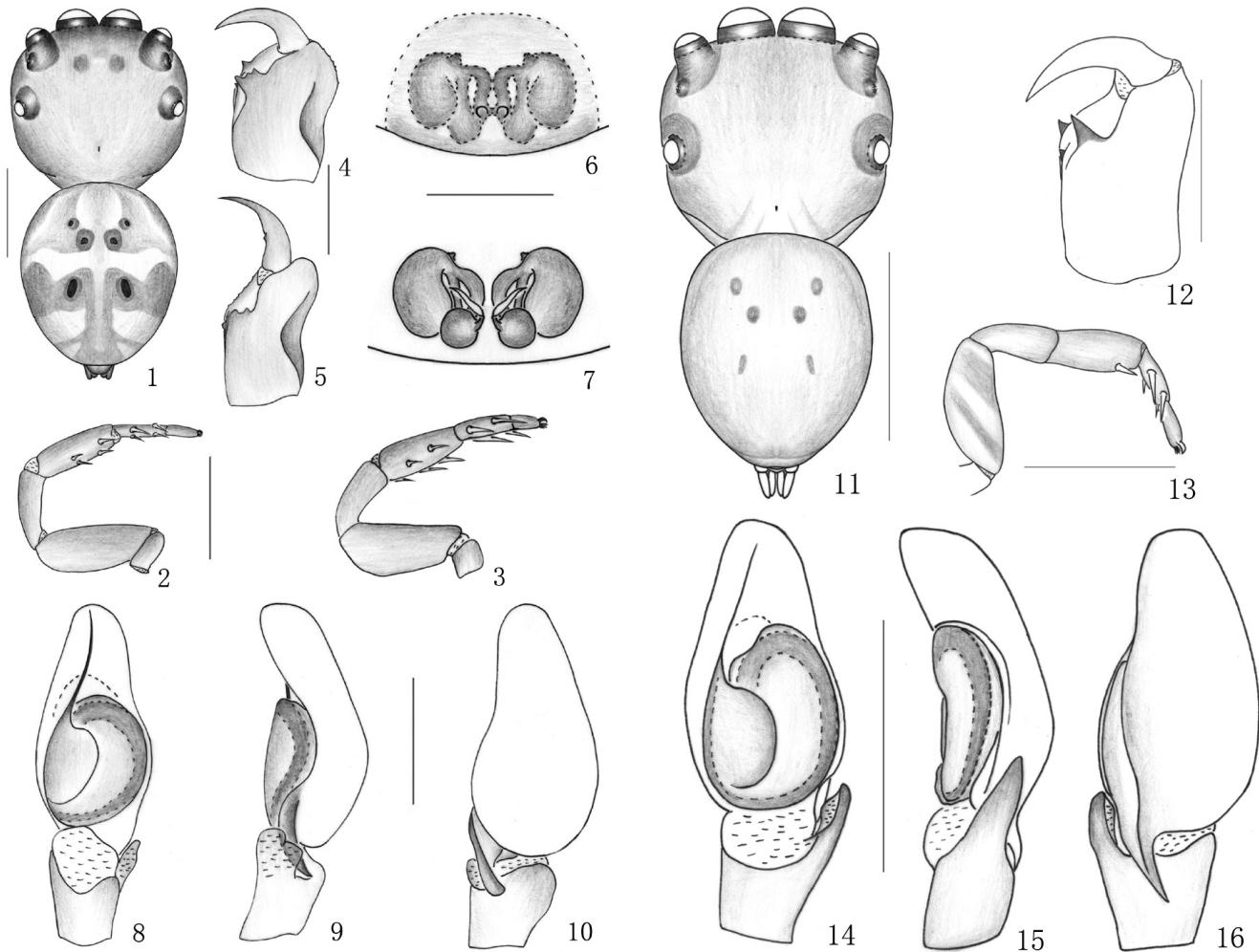
Irura Peckham & Peckham, 1901

Irura Peckham & Peckham, 1901: 227, f. 3; Zabka, 1985: 232, f. 236–250; Peng *et al.*, 1993: 97, f. 314–362.
Kinchia Zabka, 1985: 233.

Type species: *Irura pulchra* Peckham & Peckham, 1901, by original designation.

Irura bidenticulata, new species
(Figs. 1–10)

Type material. Holotype male, Hainan Island, Ledong



Figs. 1–10 *Irura bidentatiformis* sp. nov. 1. male body, dorsal view; 2. male left leg I, prolateral view; 3. female left leg I, prolateral view; 4. female left chelicera, posterior view; 5. male left chelicera, posterior view; 6. epigyne, ventral view; 7. vulva, dorsal view; 8. male left palp, ventral view; 9. same, retrolateral view; 10. same, dorsal view. Scale lines: 1.0 mm (1–5), 0.25 mm (6–10).

County, Jianfengling Tropical Botanical Garden ($18^{\circ}45'N$, $108^{\circ}49'E$), 28 May 2009, Chao Zhang leg. Paratypes: two males and four females, same data as holotype, Xiao-xiao Zhang and Sheng-tao Guo leg.

Etymology. The specific name refers to the spermatheca with one dentate processes; adjective.

Diagnosis. The male of the new species is similar to *Irura trigonapophysis* (Peng & Yin, 1991), but can be distinguished from the latter by: the end of cymbial flange bend inward. The female resembles *Irura yueluensis* (Peng & Yin, 1991), but can be distinguished from the latter by: vulva has two pairs of spermathecae, the front pair has a dentation on the tip.

Description. Males length 3.46–3.80. Holotype total length 3.80: cephalothorax 1.75 long, 2.05 wide; abdomen 2.05 long, 1.88 wide. Carapace yellow. Eyes with black

Figs. 11–16 *Irura pengi* sp. nov. 11. male body, dorsal view; 12. male left chelicera, posterior view; 13. male left leg I, prolateral view; 14. male left palp, ventral view; 15. same, retrolateral view; 16. same, dorsal view. Scale lines: 1.0 mm (11–13), 0.25 mm (14–16).

rings except AMEs. Carapace moderately granular, brown with blackish sides, white setae and metallic luster; two big round spots between the second eye rows (Fig. 1). The first eye row 1.65 wide, third eye row 2.05 wide, eye area 0.99 long. Eye size: AME 0.53, ALE 0.30, PME 0.07, PLE 0.20. Clypeus height 0.13. Fovea extremely short, cervical groove and radial grooves indistinctly. Chelicerae (Fig. 5) yellow brown, with condyles, and with some small promarginal dentation, one combined retromarginal tooth, and one middle tooth between promargin and retromargin. Endites and labium yellow brown, with black hairs on the anterior margin. Sternum oval. Leg I (Fig. 2) slightly swollen and more robust than the others. Tibia I with two pairs of ventral spines, metatarsus I with two pairs of ventral spines. Leg measurements: I 4.66 (0.82 + 1.29 + 1.29 + 0.76 + 0.50), II 2.87 (0.99 + 0.56 + 0.50 + 0.46 + 0.36), III 2.41 (0.86 + 0.33 + 0.46 + 0.50 + 0.26), IV 2.85 (0.96 +

$0.50 + 0.56 + 0.50 + 0.33$). Leg formula: 1423. Abdomen broadly oval, yellow brown; dorsum with white, flat and short metalescent hairs, and three pairs of muscular impressions; venter with two grayish longitudinal stripes, bilaterally with black oblique lines. Anterior spinnerets grey brown, others light yellow.

Male Palp (Figs. 8–10). Brown, tibia with a membranous structure at the joint, the end of cymbial flange bent inward; retrolateral tibial apophysis membranous, tip obtuse and cloven; embolus long and thin, originating prolaterally.

Females. Total length 3.30–3.87. A paratype female total length 3.63: cephalothorax 1.65 long, 2.08 wide; abdomen 1.98 long, 1.88 wide. Anterior eye row 1.62 wide, posterior eye row 1.95 wide, eye area 0.86 long. Eye size: AME 0.50, ALE 0.07, PME 0.07, PLE 0.20. Chelicerae (Fig. 4) with one promarginal tooth and one large keel-like retromarginal tooth. Leg I (Fig. 3) slightly swollen and more robust than the others. Leg measurements: I 3.75 ($1.19 + 0.43 + 0.93 + 0.75 + 0.45$), II 3.66 ($1.05 + 0.23 + 1.05 + 0.83 + 0.50$), III 3.26 ($1.00 + 0.38 + 0.55 + 0.88 + 0.45$), IV 4.59 ($1.20 + 0.38 + 1.00 + 1.38 + 0.63$). Leg formula: 4123. Other characters are similar to those of males.

Epigynum (Figs. 6–7) with only one pair of small copulatory openings; vulva with two pairs of spermathecae, the front pair large with a dentation process apically, the posterior pair spermathecae almost oval.

Distribution. China (Hainan).

Remarks. The specimens of the new species were collected from shrubs and plants by sweep net. They crawl from one side to the other side of the leaves, or jump from leaf to another leaf. At present, this new species is known only from Hainan, China.

Irura pengi, new species (Figs. 11–16)

Type material. Holotype male, Hainan Island, Qiongzhong County, Limu Mountain ($19^{\circ}14'N$, $109^{\circ}48'E$), 18 August 2007, Feng Zhang leg.

Etymology. The specific name refers to an expert on Salticidae in China, Xian-jin Peng.

Diagnosis. This new species is similar to *Irura hamata-pophysis* (Peng & Yin, 1991), but can be distinguished from the latter by the promarginone with one combined basally teeth; and by the cymbial flange extending to the palpal tibia.

Description. Male holotype total length 3.33: cephalothorax 1.58 long, 1.78 wide; abdomen 1.75 long, 1.55 wide. Carapace (Fig. 11) yellow. Eyes with black surroundings

except anterior median eyes. Carapace external moderately granular, brown with blackish sides, white setae and with metallic luster. First eye row 1.50 wide, second eye row 1.43 wide, third eye row 1.70 wide; eye area 0.93 long. Eye size: AME 0.45, ALE 0.25, PME 0.05, PLE 0.23. Clypeus height 0.12. Fovea extremely short, cervical and radial grooves unclear. Chelicera (Fig. 12) dark brown, with one promarginl tooth and one retromarginal tooth, the retromarginal tooth with a dentate process above the base. Endites, labium, dark brown with black hairs on the margin. Sternum oval. Leg I and other femora drak brown, with light yellow triples and sparse black hairs. Leg I slightly swollen and more robust than the others. Tibia I with one pair of ventral spines, metatarsus I with two pairs of ventral spines (Fig. 13). Leg measurements: I 3.83 ($1.32 + 0.73 + 0.89 + 0.46 + 0.43$), II 2.48 ($0.86 + 0.4 + 0.46 + 0.43 + 0.33$), III 2.05 ($0.73 + 0.30 + 0.33 + 0.36 + 0.33$), IV 2.44 ($0.89 + 0.36 + 0.46 + 0.4 + 0.33$). Leg formula: 1243. Abdomen broad oval; dorsum with white metalescent hairs, and three pairs of muscular impressions; venter with two grayish black longitudinal stripes, the bilaterally with black oblique lines. Anterior spinnerets grey brown, others light yellow.

Male Palp (Figs. 14–16). Brown, tibia with a membranous area at the joint, cymbial flange long, with pointed tip; retrolateral tibial apophysis digitiform, embolus long and thin.

Distribution. China (Hainan).

References

- Li, S. Q & Wang, X. P. 2010. Endemic spiders in China, version 1.0. <http://www.amaurobiidae.com/araneae/index.php>. (accessed 26 March 2011)
- Peckham, G. W. & Peckham, E. G. 1901. *Pellenes* and some other genera of the family Attidae. Bulletin of the Wisconsin Natural History Society (N.S.) 1: 195–233.
- Platnick, N.I. 2011. The world spider catalog, version 11.5. American Museum of Natural History. Available from <http://research.amnh.org/entomology/spiders/catalog/index.html> (accessed 2 March 2011).
- Song, D. X., Zhu, M. S. & Chen, J. 1999. *The Spiders of China*. Hebei Science & Technology Publishing House, Shijiazhuang, 640 pp.
- Song, D. X., Zhu, M. S. & Chen, J. 2002. Araneae. In: Huang, F.S. (Eds.), *Forest Insects of Hainan*, Science Press, Beijing, pp. 912–932.
- Zabka, M. 1985. Systematic and zoogeographic study on the family Salticidae (Araneae) from Vietnam. Annales zoologici, Warszawa, 39: 197–485.
- Peng, X. J., L. P. Xie, X. Q. Xiao & C. M. Yin. 1993. *Salticids in China (Arachniida: Araneae)*. Hunan Normal University Press, 270 pp.

Received April 20, 2011 / Accepted October 24, 2011